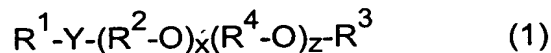


WHAT IS CLAIMED IS:

1. An aqueous plant protection formulation in the form of a suspension comprising at least one polymer which can be prepared by radical copolymerization of

- A) acrylamidopropylmethylenesulfonic acid (AMPS) and/or its salts;
B) one or more macromonomers according to formula (1)



in which

R^1 is a vinyl, allyl, acryloyl, methacryloyl, seneciroyl or crotonyl residue;

R^2 and R^4 are, independently of one another, (C₂-C₄)-alkylene;

x and z are, independently of one another, a whole number between 0 and

500, with x+z greater than or equal to 1;

Y is O, S, PH or NH, preferably O; and

R^3 is hydrogen or a saturated or unsaturated, linear or branched, aliphatic, cycloaliphatic or aromatic (C₁-C₁₀₀)-hydrocarbon residue, preferably (C₁-C₃₀)-hydrocarbon residue,

and

C) optionally one or more other at least mono- or polyolefinically unsaturated oxygen-, nitrogen-, sulfur-, phosphorus-, chlorine- and/or fluorine-comprising comonomers.

2. A plant protection formulation as claimed in claim 1, wherein the comonomer A) is the sodium salt and/or ammonium salt of acrylamidopropylmethylenesulfonic acid (AMPS).

3. A plant protection formulation as claimed in claim 1 or 2, wherein

R^1 is an acryloyl or methacryloyl residue;

R^2 and R^4 are, independently of one another, C₂-alkylene or C₃-alkylene;

x and z are, independently of one another, an integer between 0 and 50, with x+z greater than or equal to 1;

R^3 is an aliphatic (C₄-C₂₂)-alkyl or -alkenyl residue, preferably (C₁₀-C₂₂)-alkyl or -alkenyl residue; a phenyl residue; a (C₁-C₂₂)-alkylphenyl residue, preferably sec-butyl- or n-butylphenyl residue;

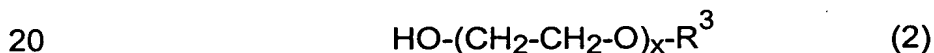
a poly((C₁-C₂₂)-alkyl)phenyl residue, preferably tris(sec-butyl)phenyl residue or tris(n-butyl)phenyl residue; or a polystyrylphenyl residue, preferably tristyrylphenyl residue.

5 4. A plant protection formulation as claimed in claim 3, wherein the R³ residue is a 2,4,6-tris(sec-butyl)phenyl residue or 2,4,6-tris(1-phenylethyl)phenyl residue.

10 5. A plant protection formulation as claimed in claim 1, wherein the polymers can be prepared by radical copolymerization of

A) acrylamidopropylmethylenesulfonic acid (AMPS), the sodium salt of acrylamidopropylmethylenesulfonic acid (AMPS) and/or the ammonium salt of acrylamidopropylmethylenesulfonic acid, preferably the ammonium salt of acrylamidopropylmethylenesulfonic acid (AMPS);

B) one or more macromonomers chosen from the group of the esters formed from methacrylic acid or acrylic acid, preferably methacrylic acid, and compounds of the formula (2)



in which x is a number between 1 and 50, particularly preferably 5 and 30, and R³ is a (C₁₀-C₂₂)-alkyl residue; and

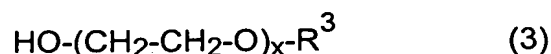
25 C) optionally one or more comonomers chosen from the group consisting of acrylamide, vinylformamide, N-vinylmethylacetamide, sodium methallylsulfonate, hydroxyethyl methacrylate, acrylic acid, methacrylic acid, maleic anhydride, methacrylamide, vinyl acetate, N-vinylpyrrolidone, vinylphosphonic acid, styrene, styrenesulfonic acid (Na salt), t-butyl acrylate and methyl methacrylate.

30 6. A plant protection formulation as claimed in at least one of claims 1 to 5, wherein the macromonomers B) are esters formed from acrylic acid or methacrylic acid and alkyl ethoxylates chosen from the group of the (C₁₀-C₁₈)-fatty alcohol polyglycol ethers with 8 EO units, C₁₁-oxo alcohol polyglycol ethers with 8 EO units, (C₁₂-C₁₄)-fatty alcohol polyglycol ethers

with 7 EO units, (C₁₂-C₁₄)-fatty alcohol polyglycol ethers with 11 EO units, (C₁₆-C₁₈)-fatty alcohol polyglycol ethers with 8 EO units, (C₁₆-C₁₈)-fatty alcohol polyglycol ethers with 15 EO units, (C₁₆-C₁₈)-fatty alcohol polyglycol ethers with 11 EO units, (C₁₆-C₁₈)-fatty alcohol polyglycol ethers with 20 EO units, (C₁₆-C₁₈)-fatty alcohol polyglycol ethers with 25 EO units, (C₁₈-C₂₂)-fatty alcohol polyglycol ethers with 25 EO units, iso(C₁₆-C₁₈)-fatty alcohol polyglycol ethers with 25 EO units and/or C₂₂-fatty alcohol polyglycol ethers with 25 EO units.

- 10 7. A plant protection formulation as claimed in claim 1, wherein the polymers can be prepared by radical copolymerization of
- A) acrylamidopropylmethylenesulfonic acid (AMPS), the sodium salt of acrylamidopropylmethylenesulfonic acid (AMPS) and/or the ammonium salt of acrylamidopropylmethylenesulfonic acid, preferably the ammonium salt of acrylamidopropylmethylenesulfonic acid (AMPS);
- 15 B) one or more macromonomers chosen from the group of the esters formed from methacrylic acid or acrylic acid, preferably methacrylic acid, and compounds of the formula (3)

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in which

x is a number between 1 and 50, particularly preferably 5 and 30, and

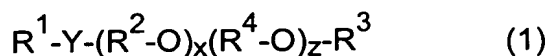
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R³ is a poly((C₁-C₂₂)-alkyl)phenyl residue, preferably tris(sec-butyl)phenyl residue or tris(n-butyl)phenyl residue, particularly preferably 2,4,6-tris(sec-butyl)phenyl residue, or a tris(styryl)phenyl residue, preferably 2,4,6-tris(1-phenylethyl)phenyl residue; and

- 30 C) optionally one or more comonomers chosen from the group consisting of acrylamide, vinylformamide, N-vinylmethacrylamide, sodium methallylsulfonate, hydroxyethyl methacrylate, acrylic acid, methacrylic acid, maleic anhydride, methacrylamide, vinyl acetate, N-vinylpyrrolidone, vinylphosphonic acid, styrene, styrenesulfonic acid (Na salt), t-butyl acrylate and methyl methacrylate.
- 35

8. A plant protection formulation as claimed in at least one of claims 1 to 7, wherein the proportion of macromonomers B) in the polymers is 50.1 to 99.9 % by weight, preferably 70 to 95 % by weight, particularly preferably 80 to 94 % by weight.
- 5 9. A plant protection formulation as claimed in at least one of claims 1 to 7, wherein the proportion of macromonomers B) in the polymers is 0.1 to 50 % by weight, preferably 5 to 25 % by weight, particularly preferably 6 to 20 % by weight.
- 10 10. A plant protection formulation as claimed in at least one of claims 1 to 9, wherein the number-average molecular weight of the polymers is 1000 to 20 000 000 g/mol, preferably 20 000 to 5 000 000 g/mol, particularly preferably 50 000 to 1 500 000 g/mol.
- 15 11. A plant protection formulation as claimed in at least one of claims 1 to 10, wherein the polymers are crosslinked.
12. A plant protection formulation as claimed in at least one of claims 1 to 11, the copolymerization being a precipitation polymerization, preferably in tert-butanol.
- 20 13. A plant protection formulation as claimed in at least one of claims 1 to 12, which is a suspension concentrate.
- 25 14. A suspension concentrate as claimed in claim 13, wherein the water content, with reference to the ready-mix formulation, is 10 to 50 % by weight, preferably 10 to 45 % by weight, particularly preferably 25 to 45 % by weight.
- 30 15. A suspension concentrate as claimed in claim 13 and/or 14, wherein the proportion of the polymers, with reference to the ready-mix formulation, is 0.01 to 10 % by weight, preferably 0.01 to 5 % by weight.
- 35 16. A suspension concentrate as claimed in at least one of claims 1 to 15, which additionally comprises at least one dispersant.

17. A suspension concentrate as claimed in claim 16, which comprises, as dispersant, phosphoric acid esters and phosphoric acid ester salts of fatty alcohols and fatty alcohol alkoxylates, preferably poly(arylalkyl)phenol polyethylene glycol phosphoric acid esters and tristyryl polyglycol ether phosphates; methoxycarbonylcellulose; methylcellulose; starch; alginates; sulfonated naphthalene-formaldehyde condensates; lignosulfonates; polyvinylpyrrolidone and/or polyvinyl alcohol.
18. A suspension concentrate as claimed in at least one of claims 13 to 17, which comprises, with reference to the ready-mix suspension concentrate, 0.5 to 10 % by weight, particularly preferably 0.5 to 5 % by weight, of dispersants and 0.01 to 2.5 % by weight, preferably 0.025 to 1 % by weight, of polymers.
19. A suspension concentrate as claimed in at least one of claims 13 to 18, wherein the proportion of pesticides, with reference to the ready-mix suspension concentrate, is 10-90 % by weight, preferably 30 to 60 % by weight, particularly preferably 40 to 50 % by weight.
20. A plant protection formulation as claimed in at least one of claims 1 to 19, which comprises at least one pesticide which is sparingly soluble in water.
21. A plant protection formulation as claimed in at least one of claims 1 to 20, which comprises at least one pesticide which is sparingly soluble in water and at least one pesticide which is readily soluble in water.
22. Use of polymers which can be prepared by radical copolymerization of
- A) acrylamidopropylmethylenesulfonic acid (AMPS) and/or its salts;
 - B) one or more macromonomers according to formula (1)



in which

R^1 is a vinyl, allyl, acryloyl, methacryloyl, seneciroyl or crotonyl residue;
 R^2 and R^4 are, independently of one another, (C₂-C₄)-alkylene;

x and z are, independently of one another, a whole number between 0 and 500, with x+z greater than or equal to 1;

5 Y is O, S, PH or NH, preferably O; and
 R^3 is hydrogen or a saturated or unsaturated, linear or branched, aliphatic, cycloaliphatic or aromatic (C₁-C₁₀₀)-hydrocarbon residue, preferably (C₁-C₃₀)-hydrocarbon residue,
 and

10 C) optionally one or more other at least mono- or polyolefinically unsaturated oxygen-, nitrogen-, sulfur-, phosphorus-, chlorine- and/or fluorine-comprising comonomers,

for increasing the suspensibility of plant protection formulations present in the form of suspensions.

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23. The use as claimed in claim 22, wherein the plant protection formulations are suspension concentrates.